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Monkey bars, noodles and hay bales: a comparative analysis of social interaction in two school ground contexts

Linda Mahony, Brendon Hyndman, Georgina Nutton, Sue Smith and Aue Te Ava

International Graduate Centre of Education, School of Education, Charles Darwin University, Casuarina, Australia

ABSTRACT

The school playground is recognised broadly in the literature as a crucial setting for children to develop social behaviours by engaging in a diverse range of physical and social activities. In this study, we examined children's social interactions in two distinctly different primary school playgrounds – a school playground with fixed equipment, and a school playground with moveable play equipment. The aim of this research was to explore how primary school children's social behaviours in schoolyard activities vary in two different playground contexts. Through field notes and observation scheduling, descriptions of the range of children's social behaviours in the two school playgrounds emerged. This study provides some insights into how the development of schoolchildren's social and emotional well-being can be supported, or hindered, by the physical design of playgrounds made available to children.

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Primary school playground; social development; personal and social capability; fixed equipment; moveable equipment

Introduction

Children spend approximately seven hours a day at school; therefore, schools present an ideal place for children to develop and practise social skills. Indeed, the Australian Curriculum mandates and embeds *Personal and Social Capability* into all stages of learning (Australian Curriculum, Assessment and Reporting Authority [ACARA], 2015). The school classroom is traditionally recognised as the place where academic learning takes place. At school, students also learn societal norms, values and beliefs. Much of the social learning also takes place outside of the classroom and in playgrounds during morning and lunch recess (Bundy et al., 2009; Hyndman, Benson, Ullah, & Telford, 2014; Hyndman, Benson, & Telford, 2014a, 2014b). There is a growing body of research on the influence of school yard play equipment and design on children's physical activity (Anthamatten et al., 2014; Chancellor, 2008, 2013; Dyment & Bell, 2007; Dyment, Bell, & Lucas, 2009; Hyndman, 2015; Hyndman & Lester, 2015); yet, there has been limited investigation of the relationship between playground design and children's social development during school recess. Teachers' recognition of the diverse range of social skills developed by children participating and interacting with high-quality active experiences within

CONTACT Linda Mahony linda.mahony@cdu.edu.au International Graduate Centre of Education, School of Education, Charles Darwin University, PO Box 40141, Casuarina NT 0811, Australia

school grounds (Bundy et al., 2009; Hyndman, Benson, Ullah et al., 2014; Hyndman et al., 2014a) continues to increase.

While schools provide children with many opportunities to participate in numerous recess activities (Webster-Stratton & Reid, 2008), it is recognised that school playgrounds do not just provide a cognitive and physical outlet during breaks from formal learning in the classroom but also provide opportunities for children to engage in social development (Bundy et al., 2009; Engelen et al., 2013). Schools have become data driven and are increasingly more focused on the academic performances of children in National testing. This intense academic focus can result in a reduced focus on social and emotional well-being and development. Such an imbalance is demonstrated in the international literature to be counterproductive. A meta-analysis of social and emotional learning programmes established a clear link to these competencies and academic performance (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011). For example, exploration with three-dimensional construction helps to develop visual–spatial imagery that is needed for learning in mathematics, outdoor play activities that require hand–eye coordination develop gross and fine motor skills needed for writing and art work, and fantasy play and sociodramatic play contribute to a writer's sense of audience (Fromberg, 2002). This builds on robust evidence provided by the U.S. Social and Emotional Learning Research Group (2010) report that also affirmed the connection. The connection between social and emotional learning and academic learning has become so clear that Weissberg and Cascarino (2013) have called for the United States to make this a national priority. With this agenda in mind, in this study, we explored the interconnectedness between physical playground equipment and children's social play as complementary to academic-focused classrooms. This study was located in two Catholic primary schools in regional Victoria, Australia. At each site, we compared primary school-aged children's typical social behaviours in the school playground in two distinctly different contexts: School A with fixed equipment and School B with moveable playground equipment, to identify particular aspects of children's social interaction and whether the design of the playground might influence the types of play in which children engage. In both locations, playground rules were in accordance with the requirements of the Australian/New Zealand Safety Standards as is common in most school playgrounds.

Design and procedure

Participants

In this study, a team of five researchers observed and compared the social behaviour of children in these schools with two distinctively differently designed playgrounds. In both schools, children were in the playground for 30 minutes during the morning break and 30 minutes during the lunchtime period.

In the two schools, all students (5–12 year olds) had access to the playground simultaneously. In Australia, the role of the teacher on playground duty is as a supervisor to ensure the safety of children. The teachers on playground duty did not engage in play interaction apart from occasionally organising a team game.

Ethical clearance was gained from the university and the Catholic Archdiocese and permission was granted from the school principals. Parents and children were provided with an information statement and signed a consent form.

School A was an established Catholic coeducational school in regional Victoria. There were two different playground locations where children played during morning and lunch recess. There was a large open oval space and a surfaced space. Both of these areas had fixed playground equipment. The oval had a large open space, goal posts, a fixed climbing frame and a sandpit around the fence line. There was also a shed with a platform. The other playground area had a hard surface with painted markings for hopscotch type activities and fixed climbing equipment with monkey bars, ladders, wooden bridges and a slide. We observed 152 children from this school (86% of the school enrolment).

School B was a newly formed Catholic coeducational school in regional Victoria. This school's playground was spacious and a range of movable playground materials (e.g. hay bales, milk crates, swimming noodles, and wooden planks, plastic sand/swimming shells, plastic cones and play balls) that one of our investigators had negotiated to be located near the space. These materials were quite a radical departure from the typical play materials for children within schools, apart from a variety of play balls.

Although the idea of using moveable equipment in playgrounds is not a new concept, there has been reticence across Australian schools to explore the learning possibilities provided by moveable equipment in their playgrounds. 'Junk' or adventure playgrounds originated from Denmark during the 1940s with a focus on adventure in the playgrounds, where children could negotiate and create new constructions as their play using a variety of materials. For schools, however, these sorts of provisions pose potential negatives that counter preferences for orderly and aesthetically pleasing playgrounds, and, the non-prescriptive possibilities that are opened by these types of playgrounds arouse concerns for safety.

School B in this study dared to pursue this ethos of adventure by electing to place moveable equipment across their playgrounds. Children were at liberty to do anything they liked, or do nothing at all with the materials provided (Michaelis cited in Brett, Moore, & Provenzo, 1993). Children could freely access these materials and engage with them as they chose, although it was anticipated that the children might be more included towards imaginative play or role-play, as well as physical play. The play would be child-led and rules were kept to a minimum. The only rules were in accordance with the requirements of the Australian/New Zealand Safety Standards. For example, children were instructed not to stack more than two hay bales on top of each other (approximately waist height), and children were not to strike each other with the equipment. There was no fixed equipment (e.g. climbing frames, monkey bars and slides) in this school playground. At this school, 123 students participated (90% of the school enrolment).

Although this is a qualitative study and we have not quantified our findings, we were able to garner a picture of the types of play that the majority of children at each of the schools engaged in over a five-day period.

Data collection

Video data of children playing during morning and lunch recess at these two primary schools were collected by one researcher from predetermined target areas over five days in both playgrounds. The video cameras were strategically placed to be relatively unobtrusive, close enough to clearly see the behaviour of the children, yet far enough away to neither interfere nor invite interaction with the children's play.

Observational procedures

The videos from each site were later viewed by the research team whose focus was to note evidence of social play. School A had multiple play areas, each with fixed equipment, whereas School B proffered one large open space where the movable materials were located. We collated our observation notes and then categorised the social complexity of these play behaviours according to the protocols provided by Howes and Matheson (1992). Although we recognise that schools are situational and students are individuals, and that comparisons between sites such as these cannot be definitive, the utilisation of the Howes Peer Play Scale (Howes & Matheson, 1992) provided a framework to code social behaviours and thereby a basis from which comparisons could be made.

Coding using a framework for social play

The Howes Peer Play Scale maps a developmental sequence in the qualities of complexity and involvement of types of play. The sequence ranges from non-interactive parallel play with no social interaction, through contingent social interaction, and then to reciprocal and complementary interactions. This is distinct from the analysis of types of play as indicative of the child's stage of development. The six types of play in the Howes Peer Play Scale were modified into four main types of play qualities due to poor reliability and frequency of the fifth type. Two types of play in the Howes Peer Play Scale, parallel and parallel aware play, were not easily distinguishable in the video data collected and so were combined for this analysis. An additional play type was incorporated from Malone and Tranter (2003) to extend the continuum to include children who are onlookers and through to more integrated complex play. These resulted in five categories being employed to focus observations and identify the types of social play in the following ways:

(1) Onlooker play where the child watches others play (Malone & Tranter, 2003).
(2) Solitary play is when the child plays alone and makes no reference to others (Malone & Tranter, 2003). Parallel play occurs when the target child and a peer are within one metre of each other and engage in the same activity but do not acknowledge each other. Parallel aware play is similar to parallel play except that the children make eye contact with each other (Howes & Matheson, 1992).
(3) Simple social play occurs when children engage in the same or similar activity and talk, smile, offer and receive toys, or otherwise engage in social interaction (Howes & Matheson, 1992).
(4) Complementary and reciprocal play occurs when children demonstrate action-based role reversals in social games such as run-and-chase or peek-a-boo (Howes & Matheson, 1992).
(5) Cooperative play is when a group of children organise themselves with a specific goal in mind, i.e. team game and drama (Malone & Tranter, 2003).

Findings

Onlooker play

Onlooker play was a frequent exercise for some children at School A. These were the children who spent their breaks outside of the classroom watching others play in the sandpit,

watching small groups monopolise the climbing frame from the edges of the playground. Or they would wander across the playground, perhaps advertently or inadvertently crossing the path of a group or game, but nevertheless appearing self-focused, and not interacting with other children. Time for self-focus and no interaction need not necessarily be viewed pejoratively, yet, given the defined spaces and fixed equipment, the number of participants in these spaces will inevitably be limited, exclusion from the play was implicit. In some footage, we sensed wistful longing from the children at the edges, rendered more notable when we looked to the onlooker play in School B. Here, we observed children watching other children build their own fortresses, boats and other creations and subsequently move to try some of the activities they observed for themselves. Their observations of others moved them to purposeful activities. Their looking on was integral to the play that evolved. Although remaining outside of the play that they were observing these children were nevertheless engaged in aspects of Social and Emotional Learning, for example, self-awareness, social awareness and self-management. It could be argued perhaps that the children in School A were also practising these social and emotional skills, but the open spaces and tractable materials available in the latter provided richer learning experiences, as seen in the self-confidence that moved them to create new ways to play.

Solitary, parallel and parallel aware play

It is natural for children to play alone, or in parallel with others, with or without reference to others (Malone & Tranter, 2003). Children can enjoy the independent activity and can benefit from play conducted in close proximity to others. In parallel aware play, there is some eye contact between children playing (Howes & Matheson, 1992; Malone & Tranter, 2003) that suggests that this type of play engages children in the interpersonal social and emotional learning, such as social awareness and relationship skills.

Children at School A engaged with all three of these independent types of play. This included children bouncing and kicking a ball alone or solitary play in the sand pit, hanging and swinging on a hand railing in parallel and small groups walking around the periphery of play spaces, in what might be classified as parallel aware play.

Children in School B also displayed solitary and parallel types of play, but in more purposeful and inquisitive ways than we observed at the other school. Solitary play included children exploring equipment, investigating how it worked, and experimenting with different ways it could be used. For example, children were observed swinging pool noodles, then transforming them into horses and galloping across the yard. Enacting parallel awareness other children responded by joining in, walking and running across the playground, following and copying others. Again, the provision of an open space and materials that could be used in multiple ways provided more robust evidence of social emotional learning as per self-awareness, self-management, and social awareness and relationship skills in particular, than in the more typical playground setting.

Simple social play

In simple social play, children engage in the same or similar activity and talk, smile, offer and receive toys or otherwise engage such relatively simple social interactions. In this nomenclature, the play is deemed simple, in that the interactions have little bearing on

others' play and social play because there is some interaction between the children. Simple social play was observed in School A. This included children running in groups from one space to another or to other equipment, and ball activities such as running around with friends and bouncing a ball or kicking a ball in ways that displayed simple organisation. Other children were observed going to the playground with a hula hoop but their interest was not sustained, the hoop was discarded quickly, and they restlessly moved on to something else. Similarly, other children would enter a game with a soccer ball, interact briefly but their engagement would not be sustained and they would exit quickly. These activities did not develop into complementary and reciprocal types of play for there was little exchange of action between children whom we observed.

In School B, we also saw children engaged in simple social play. Children climbed on and rolled off hay bales, and ran together from one area to another. However, this play had physicality and a quality of exuberance that was not seen in the children who were idly swinging off a handrail or a monkey bar. A grassed field, fresh air, trees and space provided at School B also seemed to have an effect on the quality of simple social play that we observed.

Complementary and reciprocal play

Complementary and reciprocal play is the type of play most ripe for learning. Social emotional skills observed were self-awareness, self-management and social awareness to hone children's relationship skills with responsible decision-making. In this type of play, children demonstrated action-based role reversals in social games, even simply such as playing run-and-chase. There was some reciprocal back-and-forth action between the players, whether it was verbal or non-verbal. This type of play did not require complex organisation nor did it necessarily require a specific goal. This type of play could be spontaneous.

In the school with fixed play equipment, children talked in pairs, or small groups whilst walking from one part of the playground to another. Children played hide-and-seek, follow-the-leader, chase and clapping games. One day, a group ran to the monkey bars, did flips and returned to the asphalt quadrangle. Another day, a group of girls were intent to practise some dance moves, but the relatively enclosed space, the close proximity of other children, or even the watchfulness of otherwise idle children seemed to prompt them to disband their activities. There were brief role-plays (children pretending to be asleep), a platform became a stage, and sword play with cricket bats suggested a desire for something new and imagined. There was quite a lot of rough-and-tumble play, and some fairly half-hearted down ball play in the marked section of the yard.

Bullying incidences were observed. One student wanted to play, but was chased away by another student. The use of the ground appeared to be open for negotiation. One day, a group of older girls were sitting on the cricket pitch. They stretched out, kicked their legs and held their ground as the boys came close by swinging cricket bats. When one bat-wielding child came too close to the pitch, the bat was promptly confiscated by one of the girls and thrown several metres.

Instances of negotiating were observed. There was an incident over possession of an object between a boy and girl. The object seemed to belong to a girl and was being held by a boy. The girl asserted her authority standing strongly and facing the boy with her

hands on hips. She wanted the object back. The boy threw it and the group of girls followed it to retrieve it.

Overall, a lack of sustained engagement by the children was observed in the playground with fixed equipment. Consistently, the most purposeful and time-demanding activities were spent negotiating rules and terms of engagement.

Similar play activities occurred in School B. Chase games, hide-and-seek, and follow-the-leader appeared to be perennial favourites with both cohorts of primary school children. These children too ran around, sat talking in groups and kicked balls. However, there was one notable difference, that is, the absence of disagreements and arguments in the playground with moveable play equipment. This could be because children were more engaged and even excited by the new range of possibilities open to them in this type of playground.

Interestingly, children in the playground with the moveable play equipment seemed to forward plan, band together in groups to negotiate their conceptions of the game, and how they would collectively use the materials. We were not privy to their imagined scenarios and negotiations, but it appeared that discussions were concept driven – a horse from a flotation noodle, a boat from bales of hay, and even secret cubby houses or headquarters.

By contrast, in School A with the fixed equipment, the children's negotiations appeared to be rule based, requiring conformity, and leaving little room for new entrants into the games. While equipment was shared, it was generally offered in the context of the game, for example, a soccer ball would be passed to a team member, with the expectation that the game of soccer would continue.

Cooperative play

Cooperative play occurs when a group of children organise themselves with a specific goal in mind, i.e. team game or drama activity (Malone & Tranter, 2003). It is the most socially engaging type of play from the range of play types described above. In School A with the fixed playground equipment, students engaged in structured team sports such as soccer, cricket and football. Children organised themselves into teams to play these games. They were observed huddling together making decisions about the game, working out the organisation of the sport – picking teams, determining the space to be used and the rules of the game. Interestingly, in this school, the teachers on yard duty would often initiate formally structured team games. The children, when left to organise running races and obstacle courses themselves, adopted formal rule-based approaches. Even groups of children who were not participating in these activities opted for skills-based practice such as kicking and passing a ball. These all appeared to be goal-oriented interactions and activities shared by these children.

Children playing in School B with moveable equipment also engaged in team sports. However, a wider range of examples of cooperative play were observed in School B as children invented team games. The children invented a ride in a plastic shell that is usually used for sand and water play with younger children. A rope was fixed to the shell. Older children gave younger children rides by dragging the 'sleigh' down the gentle slope. Children organised themselves and lined up in an orderly way while they waited for their turn. Children were observed giving instructions of how they created their 'inventions' to others. Children gave demonstrations and instructions on how to carry various

objects and where to put them in the group's building. Groups of children gathered objects in teams to set up play space stations. They used teamwork to drag objects, stack crates and bales, and to lift heavy bales of hay. They collaborated on the design and formation of their constructions and re-positioned bales of hay. They recruited other children to join in building projects.

There seemed to be a limited range of cooperative play activities in the school playground with fixed playground equipment such that children's cooperation was based on the predetermined and formal rules of action and interaction based on their knowledge of sports. Children playing in the playground with moveable equipment engaged in a larger range of activities which were largely more child initiated and inventive or negotiated – thus providing more opportunity for social interaction with a wider range of children of different ages and abilities. Children using these unstructured materials demonstrated persistence with developing teamwork and planning for a common outcome or goal. They demonstrated a wider repertoire of social skills and emotional expression and rehearsal for regulation.

Conclusions and implications

This study showed evidence of the range of social interaction and social activity of children in two contrasting playground settings. There is evidence of solitary, parallel, simple social complementary and reciprocal, and cooperative play in both school playgrounds. However, there were some notable differences in the qualities of types of play.

There seemed to be a limited range of play activities in the school playground with fixed playground equipment. Children participated in more regulated and structured or traditional activities in the school with fixed playground equipment. It was observed that children in this playground did not seem as active as the playground without fixed equipment. The routine and predictable physical environment seemed to limit activities and options such that some children were possibly experiencing boredom and some disagreements arose. Younger children in the fixed equipment playground were attracted to the sandpit and tended to engage in parallel play. Parallel play serves as a link to more cooperative types of play (Brown, 2010). Children in the upper primary years engaged in organised team games or regulated and structured games such as hopscotch and two squares marked on the play surface. It is possible that this had been particularly organised by the teacher for this group of children.

Children in the playground with movable equipment were engaged in a wider range of activities and seemed to have a purpose for their play. For example, they were talking and walking around the playground observing what other children were doing. Children heard and watched others' creative elements in their play, which then informed how they used the equipment. Children seemed to collaborate more for particular purposes – whether it was to build a fort, or give rides in the 'sleigh'. Even children engaging in onlooker, solitary, parallel play seemed to have a purpose – planning and considering where they will go, what they will do as they watched others modelling different things. There was more purposeful collaboration in the playground with moveable equipment. There was a higher level of social and cognitive engagement evident.

There seemed to be more invention of how to use the unstructured material and less playing of organised and structured games with set rules. This provided more opportunity

for social interaction with a wider range of children of different ages and abilities. Children using these unstructured materials demonstrated persistence in developing teamwork, negotiation and planning for a common outcome or goal. The playground with the moveable equipment seemed to be more abuzz with excitement with new and different possibilities as children discovered or invented something new.

We conclude that it seems the nature of the play space may influence aspects of children's social play; in particular, a playground with unstructured materials lends itself to quality negotiation and collaboration between children. Play provides children with the opportunity to self-direct, self-organise, exercise self-control and negotiate with others (Reed & Brown, 2000). This study illustrated that the hidden curriculum of the school playground, that is those lessons that are learnt but are not openly conveyed, and particularly the design of the playground can have impact on children's social and emotional learning and development. Whilst traditional analyses of children's play focus on the developmental features within the child, the quality design and management of the play environment may largely determine the qualities of complexity and engagement that develops in the play (Malone & Tranter, 2003). These findings may provide suggestions for the provision of particular areas or play equipment that promotes social and emotional development of children that promotes social, emotional and cognitive development.

A well-designed playground is one that evolves to meet not only the physical needs but also the social and emotional needs of children. A playground with moveable equipment is able to be transformed by introducing different equipment. Equipment can be transformed by children for a range of purposes as was seen in this study (a pool noodle can become a horse; crates can become a castle or a fort). Given the social and emotional benefits of playgrounds with moveable equipment, it seems logical to provide these types of equipment for children to explore.

Notes on contributors

Dr Linda Mahony is a Lecturer in Early Childhood Learning and Course Manager for the Bachelor of Teaching and Learning undergraduate teaching programme at Charles Darwin University that encompasses Early Childhood, Primary School and Secondary School qualifications. Previously she was a teacher of young children in schools for 20 years. Her research interests are in the field of promoting well-being and learning of young children and their families as well as teachers' pedagogy for teaching primary school-aged children's language and literacy, and early childhood preservice teachers' practicum experiences and decision-making processes.

Dr Brendon Hyndman is Lecturer in Health & Physical Education within the School of Education at Southern Cross University (SCU). His research has been focused on schools as a crucial setting to develop students' physical activity participation, health and overall well-being. As childhood is a time for students to understand the world through a variety of activities and play, his research has been guiding awareness of the range of influences and strategies to develop students' engagement in physical activities via informal, pedagogical and curricular approaches.

Dr Georgie Nutton is a Senior Lecturer and Course Manager for the undergraduate teaching program at Charles Darwin University now incorporating both early childhood (birth to five years) and primary-aged children (to age 12 years). She has three decades of practice, policy and research contributions with particular interests in early childhood development, including access and equity in socially disadvantaged communities.

Dr Sue Smith is a Senior Lecturer in the School of Education at Charles Darwin University where she teaches Child and Adolescent Development and leads the Wellbeing and Sustainability research

theme in the International Graduate Centre of Education. Her particular research interests are spirituality, cultural and religious diversity and well-being in education.

Dr Aue Te Ava is a Lecturer in Education in the School of Education at the Charles Darwin University campus in the Northern Territory. His research focus is indigenous/Pacific Health and Physical Education, Pacific men substance abuse in Australia as well as the Pacific, and health and well-being of indigenous populations in Australia.

Disclosure statement

No potential conflict of interest was reported by the authors.

ORCID

Linda Mahony http://orcid.org/0000-0003-0350-3976
Brendon Hyndman http://orcid.org/0000-0002-7915-7021

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